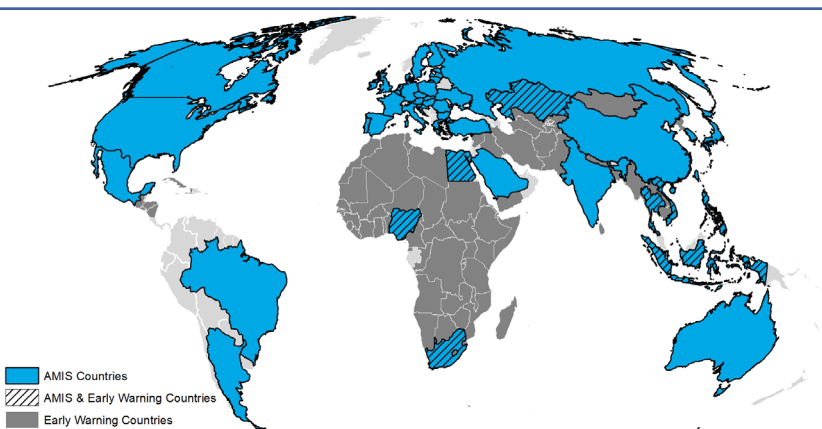




# Crop Monitor for AMIS

## Overview:

At the end of February, conditions are mixed for wheat, maize, and soybeans, while favourable for rice. For wheat, conditions are mixed in parts of the Russian Federation, Ukraine, the US, and India. Maize conditions in the southern hemisphere are mixed for Argentina and southern Brazil. Rice conditions are generally favourable in India and Southeast Asia, while mixed in South America. Soybeans remain under hot and dry conditions in Argentina and southern Brazil.

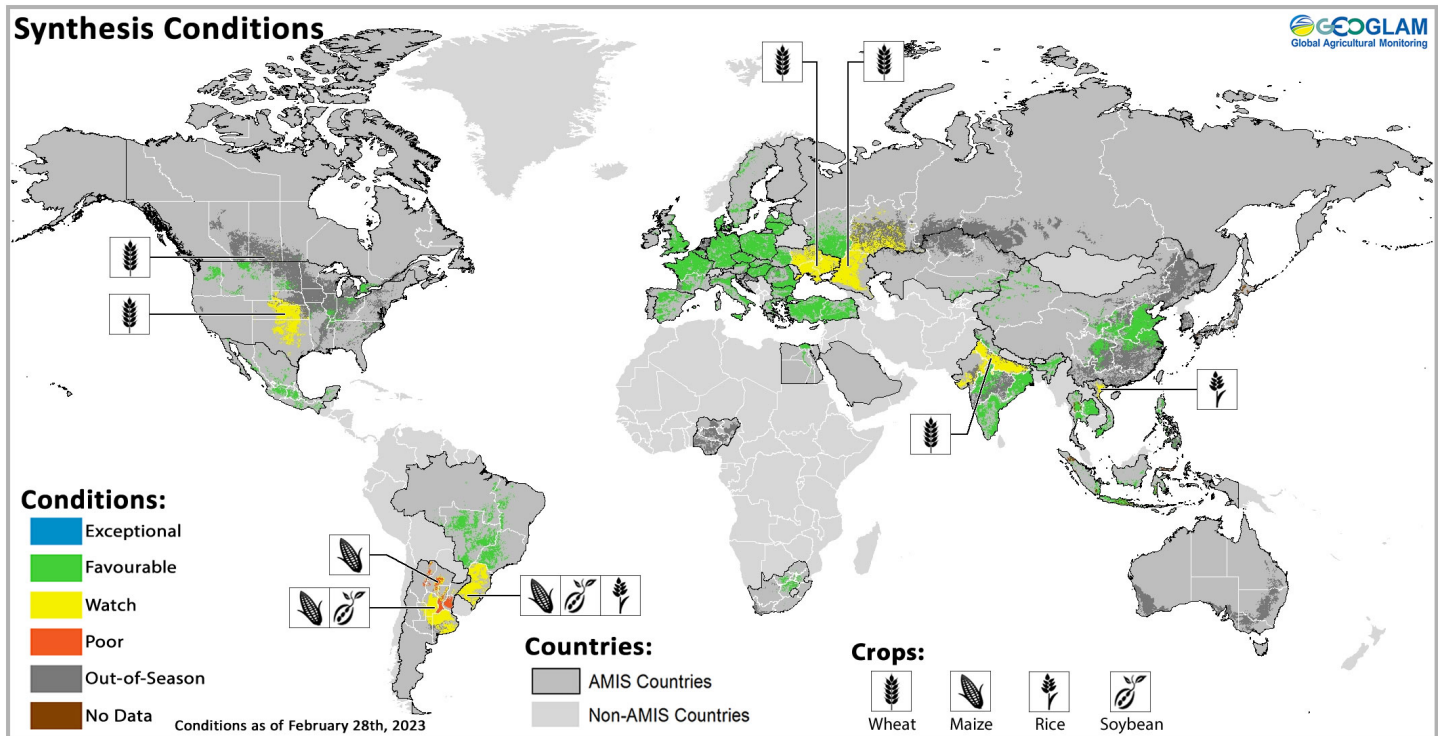


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*Assessment based on information as of February 28<sup>th</sup>*

## At a glance for AMIS countries (as of February 28th)



Global crop condition map synthesizing information for all four AMIS crops as of February 28th. Crop conditions over the main growing areas for wheat, maize, rice, and soybean are based on a combination of national and regional crop analyst inputs along with earth observation data from all Crop Monitors. **Crops that are in other than favourable conditions are displayed on the map with their crop symbol.**

### Crop Conditions at a Glance

**Wheat** - In the northern hemisphere, winter wheat is under mixed conditions in parts of the Russian Federation, Ukraine, the US, and India.

**Maize** - In the southern hemisphere, harvesting is beginning in Argentina for the early-planted crop, while in Brazil, good progress is being made for the harvesting of the spring-planted crop (smaller season) and the sowing of the summer-planted crop (larger season).

**Rice** - In India, transplanting of the Rabi crop wraps up. In Southeast Asia, dry-season rice sowing is wrapping up in the northern countries while wet-season rice harvesting is progressing faster than last year.

**Soybeans** - In the southern hemisphere, hot and dry worsens conditions in Argentina and Rio Grande do Sul in Brazil.

### Forecasts at a Glance

**Climate Influences** – The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. A transition to a neutral ENSO state is likely, with a 94% chance of ENSO neutral conditions in March-April-May, according to the IRI/CPC forecast.

**Argentina** – In the short term (two weeks), below-average precipitation is expected over the next week followed by near-average precipitation over the second week and the long-term (three-month) forecast.

**Brazil** – March precipitation is likely to be near-average across the country. However, the long-term (three-month) forecast is for below-average rainfall across Mato Grosso do Sul, Sao Paulo, Parana, Santa Catarina, northern Rio Grande do Sul, southern Minas Gerais

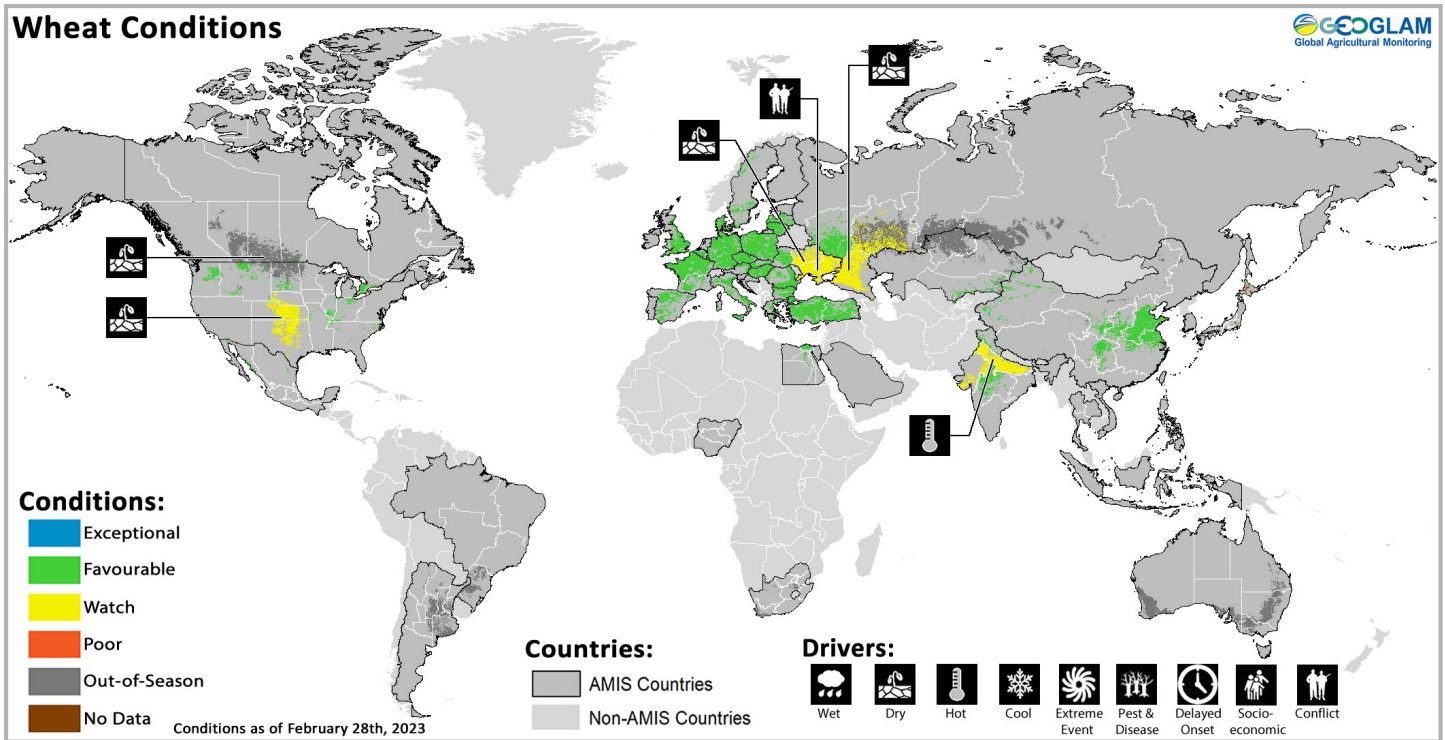
**The United States** – The short-term (two weeks) forecast indicates likely above-average precipitation across the western and central parts of the country, while the long-term forecast (three-month) indicates only below-average precipitation in the Southwest and Florida, while above-average in the eastern Mid-West and Mid-Atlantic.

*While the Crop Monitor for AMIS is primarily focused on documenting crop conditions based on environmental factors, the war in Ukraine and in other conflict areas will very likely negatively impact the ability of the crop to be harvested.*

\* Assessment based on information as of February 28<sup>th</sup>

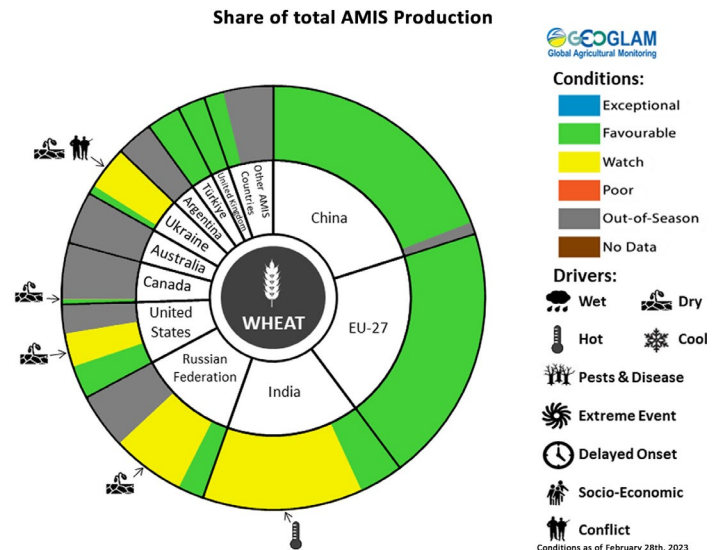


## Wheat Conditions for AMIS Countries



Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28<sup>th</sup>. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

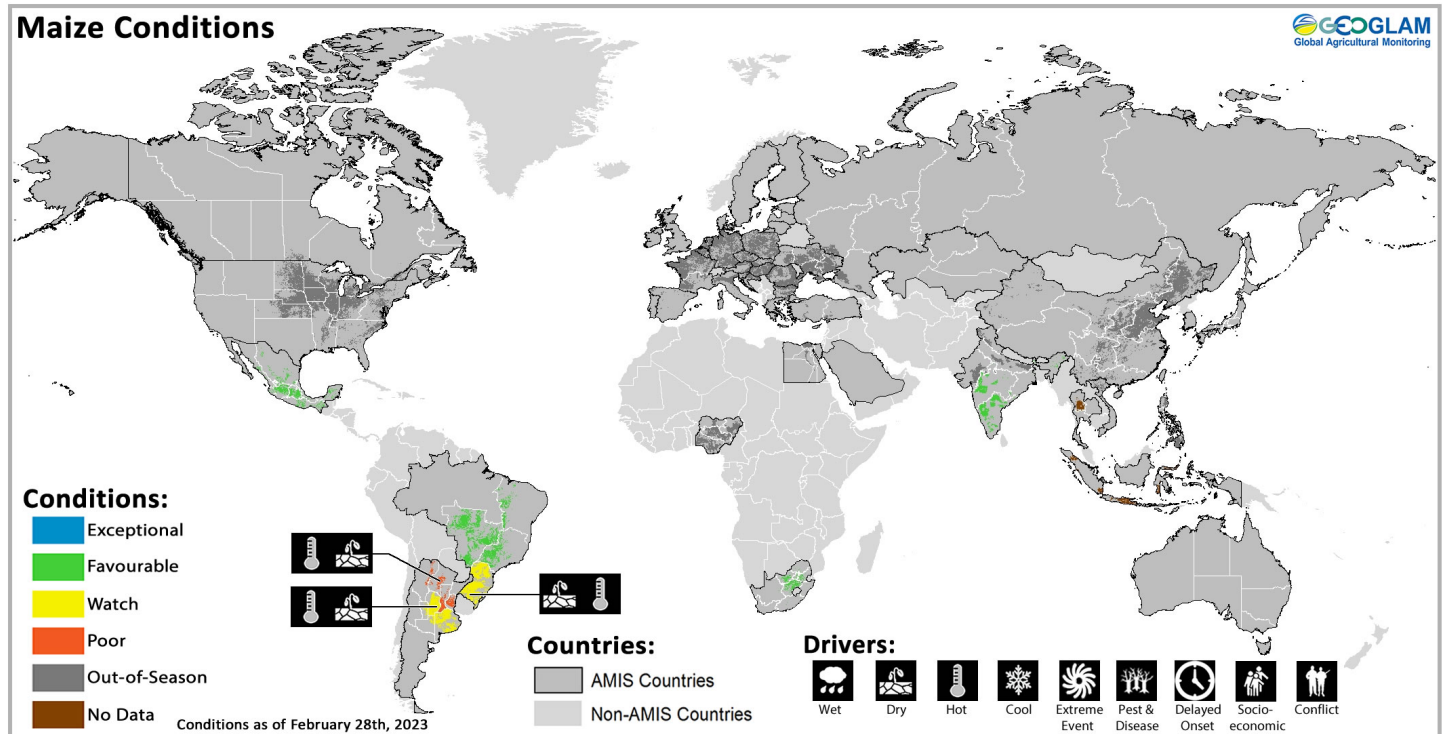
**Wheat:** In the **EU**, conditions are favourable with the hardening process complete in most countries, while progressing in the south. In the **UK**, conditions are favourable. In **Türkiye** conditions are generally favourable despite the diminished water reservoirs due to the dry and warm winter. In **Ukraine**, there was little rain over the past month, however, there is enough soil moisture at this time to start the vegetation process in the spring. The ongoing war remains a major factor in the eastern and southern regions. In the **Russian Federation**, dry conditions remain in the Volga district and have worsened in the Southern Caucasus. In **China**, winter wheat remains under favourable conditions. In **India**, winter wheat is under generally favourable conditions as harvesting begins in some regions, however, temperatures in the northern and western growing regions have risen above-average as the crop enters the critical yield developmental stage. In the **US**, dry soil conditions persist across the central and southern Great Plains. In **Canada**, conditions are generally favourable.



For detailed description of the pie chart please see box on page 6.

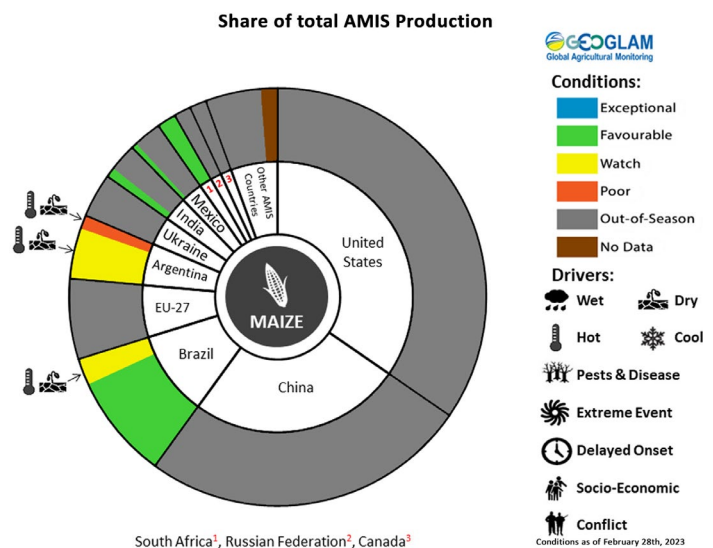
\* Assessment based on information as of January 28<sup>th</sup>

## Maize Conditions for AMIS Countries



Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28<sup>th</sup>. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

**Maize:** In **Brazil**, harvesting is progressing for the spring-planted crop (smaller season) under favourable conditions, except in Rio Grande do Sul due to a persistent lack of rain and high temperatures throughout the season. Sowing is ongoing for the summer-planted crop (larger season) under favourable conditions despite an earlier delay in sowing due to mixed weather conditions. In **Argentina**, harvesting of the early-planted crop (typically larger season) is beginning in the north under poor conditions due to hot and dry weather during the key reproductive stages. The late-planted crop (typically smaller season) is entering the critical period for yield development under hot and dry weather, however, there is still the potential to partially compensate for the losses if rains are received in the short term. In **India**, conditions are favourable for the Rabi crop with an increase in total sown area compared to last year. In **South Africa**, conditions are favourable owing to above-average rainfall since October. In **Mexico**, sowing of the autumn-winter crop (smaller season) is wrapping up under favourable conditions.

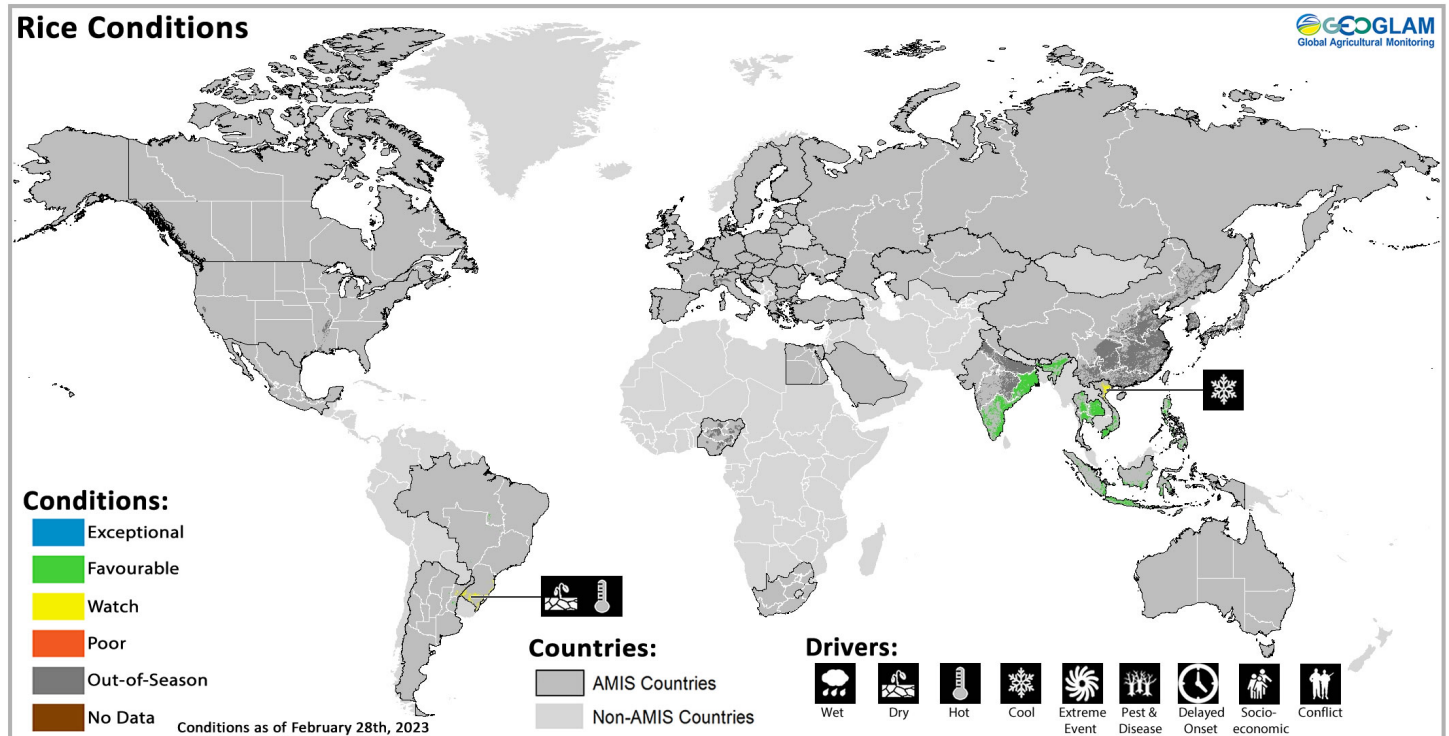


For detailed description of the pie chart please see box on page 6.

\* Assessment based on information as of February 28<sup>th</sup>

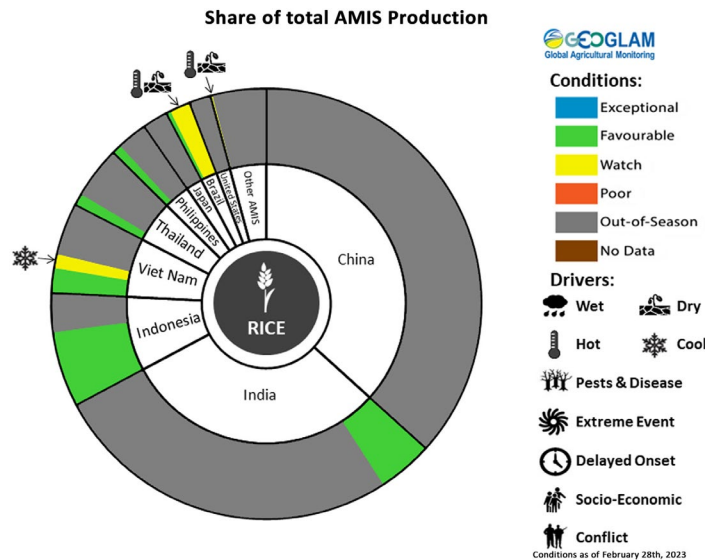


## Rice Conditions for AMIS Countries



Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28<sup>th</sup>. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

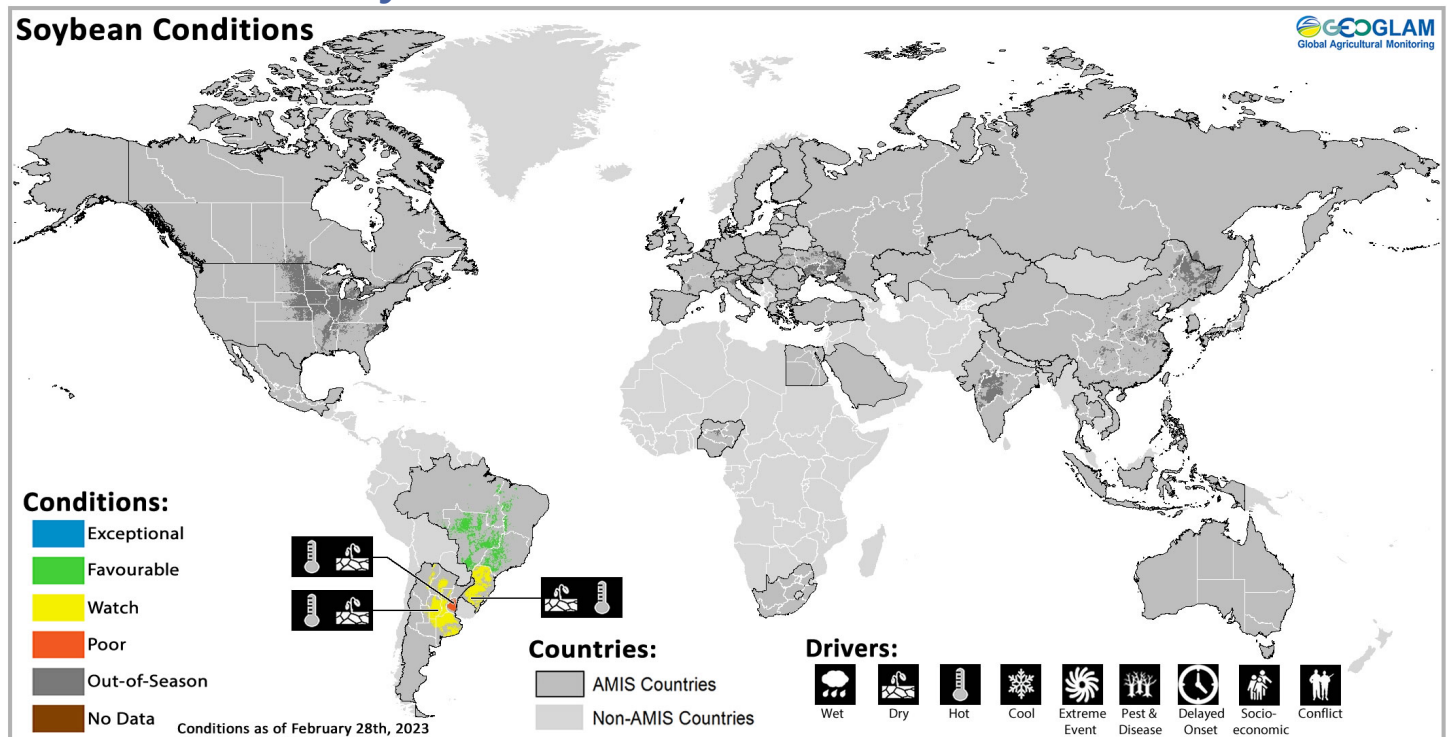
**Rice:** In **India**, transplanting of the Rabi crop is almost completed with an increase in total sown area compared to last year. In **Indonesia**, sowing of wet-season rice continues with a large increase in total sown area compared to last year due to plentiful rainfall. Harvesting of earlier sown rice is continuing with good yields. In **Viet Nam**, sowing of dry-season rice (winter-spring rice) is continuing in the South with some provinces beginning to harvest. In the North, sowing of dry-season rice (winter-spring rice) is beginning with a slow start due to prolonged cold weather. In **Thailand**, dry-season rice is in the young panicle-forming to grain-filling stages under good water availability and weather conditions. In the **Philippines**, dry-season rice continues to develop under favourable conditions despite excessive rainfall in most parts of Luzon, Visayas, and western parts of Mindanao. In **Brazil**, harvesting is beginning under dry conditions in the south. A reduction in total sown is estimated.



For detailed description of the pie chart please see box on page 6.

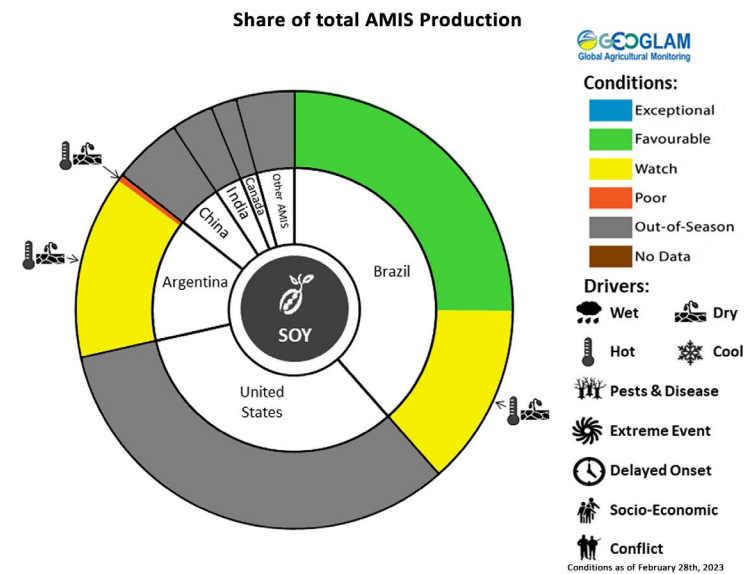
\* Assessment based on information as of February 28<sup>th</sup>

## Soybean Conditions for AMIS Countries



Soybean crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28<sup>th</sup>. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

**Soybeans:** In **Brazil**, harvesting is ongoing under favourable conditions except for in the south, due to the lack of rain and high temperatures in Rio Grande do Sul. An increase in total sown area is estimated compared to last year. In **Argentina**, the early-planted crop (larger season) and the late-planted crop (smaller season) continue to be affected by the high temperatures and lack of rainfall during the critical yield development stages. Heavy yield losses are expected, with the most affected areas located in the east. An early frost in the western areas may have impacted the late-planted crop.



For detailed description of the pie chart please see box below.

**Information on crop conditions in non-AMIS countries can be found in the [GEOGLAM Crop Monitor for Early Warning](#), published March 2<sup>nd</sup>**

**Pie chart description:** Each slice represents a country's share of total AMIS production (5-year average). Main producing countries (representing 95 percent of production) are shown individually, with the remaining 5 percent grouped into the "Other AMIS Countries" category. The proportion within each national slice is coloured according to the crop conditions within a specific growing area; grey indicates that the respective area is out of season. Sections within each slice are weighted by the sub-national production statistics (5-year average) of the respective country. The section within each national slice also accounts for multiple cropping seasons (i.e., spring and winter wheat). When conditions are other than 'favourable', icons are added that provide information on the key climatic drivers affecting conditions.

\* Assessment based on information as of February 28<sup>th</sup>

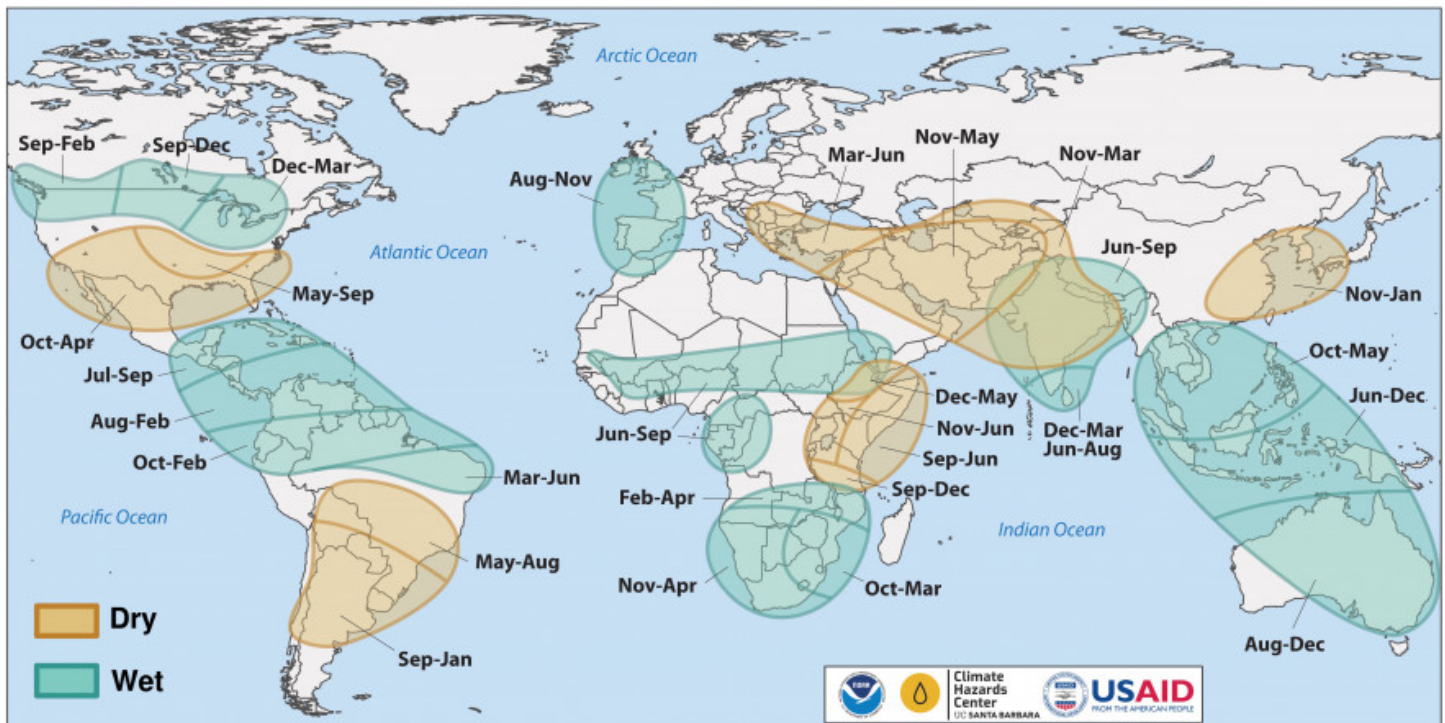


## Climate Influences: La Niña Advisory

The El Niño–Southern Oscillation (ENSO) is currently in the La Niña phase. A transition to a neutral ENSO state is likely, with a 94% chance of ENSO neutral conditions in March–April–May, according to the IRI/CPC forecast. ENSO neutral conditions are expected through July, after which El Niño conditions may develop, with a 60% chance of El Niño in August–September–October. While long-range forecasts made at this time of year can be unreliable, El Niño events can have widespread, global impacts.

Seasonal forecasts indicate La Niña precipitation impacts may continue through the next several months. While a transition to ENSO-neutral is anticipated during this time, atmospheric responses to La Niña can linger. For eastern East Africa, where multi-year drought continues to severely impact food security, yet another below-normal rainy season is likely, based on forecast La Niña-like sea surface temperature gradients during spring.

Source: UCSB Climate Hazards Center

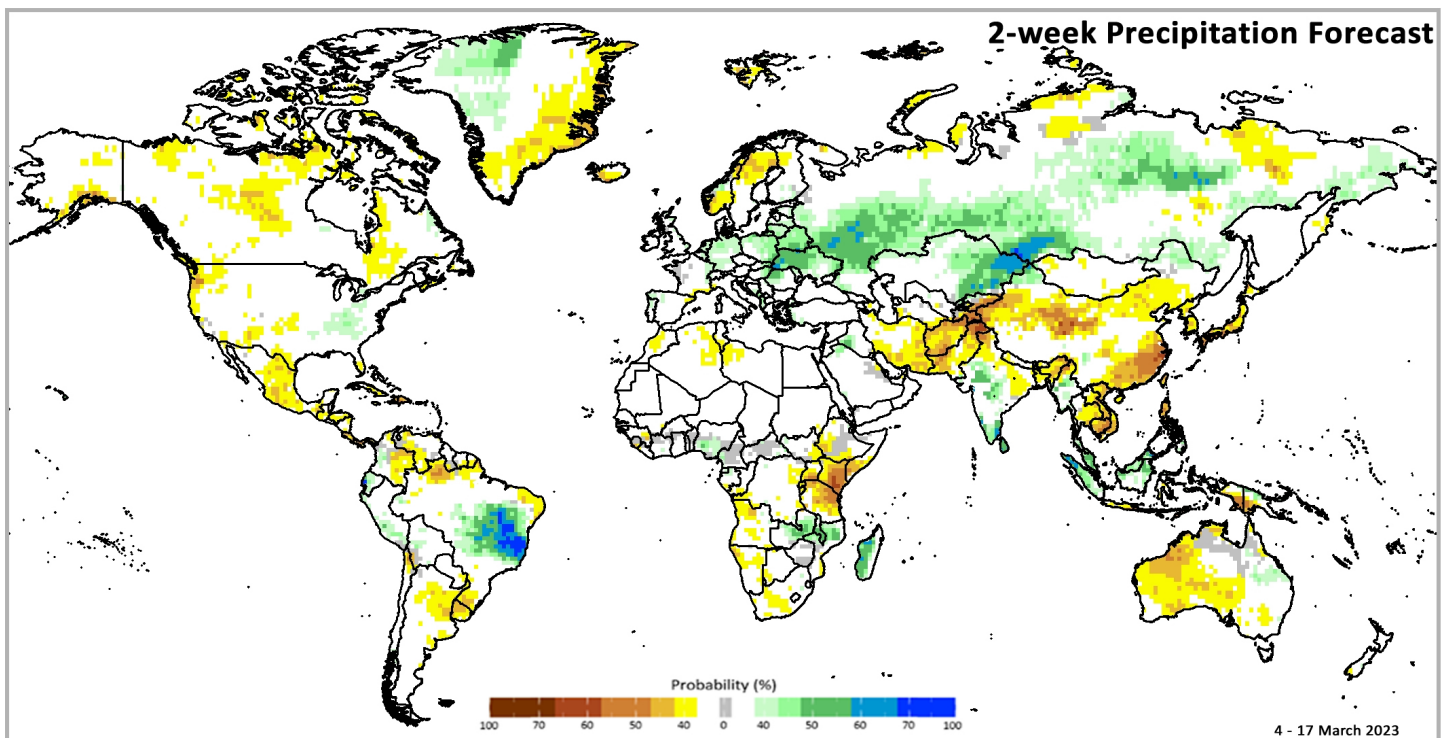


Location and timing of likely above- and below-average precipitation related to La Niña events. Based upon observed precipitation during 21 La Niña events since 1950, wet and dry correspond to a statistically significant increase in the frequency of precipitation in the upper and lower thirds of historical values, respectively. Statistical significance at the 95% level is based on the resampling of precipitation during neutral El Niño–Southern Oscillation conditions. Source: [FEWS NET & NOAA & CHC](#)

## Global Two-week Forecast of Areas with Above or Below-Average Precipitation

The two-week forecast (Figure 1) indicates a likelihood of above-average rainfall over the Mid-Atlantic of the US, central and eastern Brazil, Germany, Poland, Lithuania, Belarus, western and central Ukraine, eastern Slovakia, eastern Hungary, northwestern Romania, central Russian Federation, eastern Kazakhstan, western Iraq, southern Nigeria, Zambia, southern Malawi, northern Mozambique, central and western Madagascar, southern India, Sri Lanka, western Indonesia, and Malaysia.

There is also a likelihood of below-average rainfall over Quebec in Canada, the Pacific Northwest and the southern Plains in the US, Mexico, Guatemala, Honduras, Costa Rica, Panama, eastern Cuba, Haiti, the Dominican Republic, eastern Columbia, western Venezuela, northern and southern Brazil, Uruguay, central Argentina, Iceland, southern Norway, northern Sweden, central Morocco, eastern Algeria, southern Tunisia, western Libya, eastern and southern Ethiopia, southern Somalia, Kenya, southern Uganda, northern and central Tanzania, Rwanda, Burundi, northwestern Angola, eastern Namibia, central South Africa, southern and eastern Iran, Afghanistan, southern Kyrgyzstan, Tajikistan, Pakistan, northwest and eastern India, central and southeast China, Democratic People's Republic of Korea, Republic of Korea, Japan, the northern Philippines, northern Myanmar, Viet Nam, Laos, Cambodia, eastern Thailand, southern Indonesia, southern Papua New Guinea, and western and central Australia.



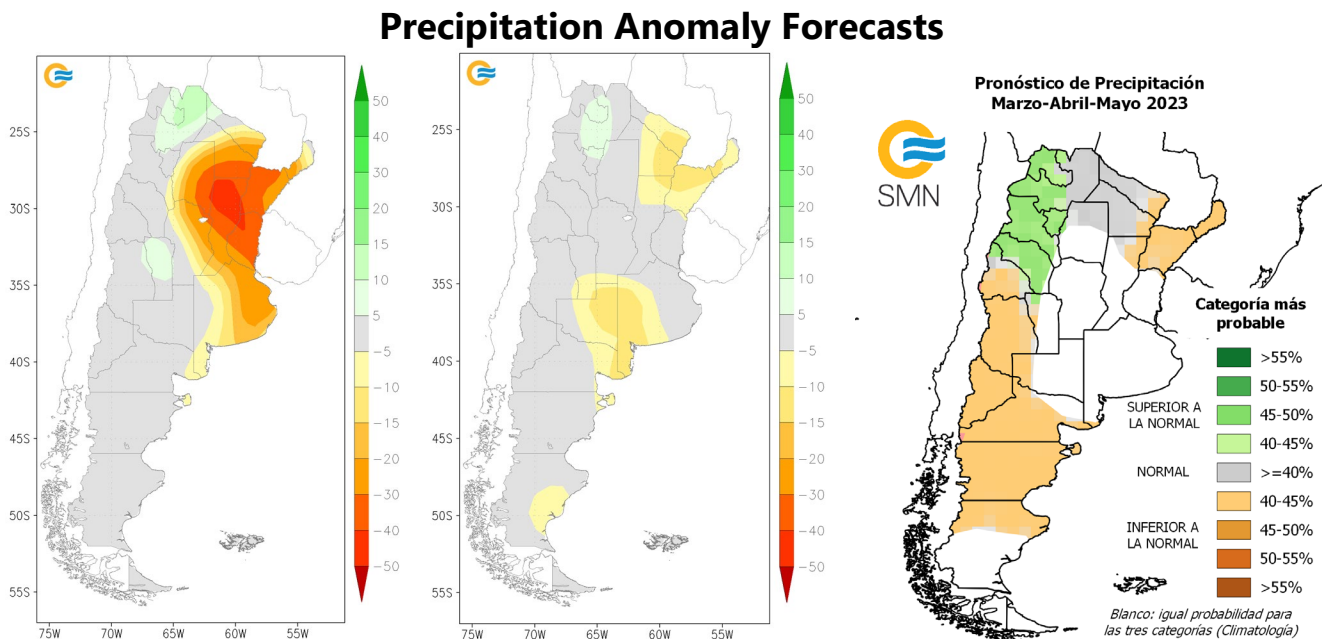
IRI SubX Precipitation Biweekly Probability Forecast for 4 – 17 March 2023, issued on 24 February 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)



## Argentina Outlook

The March 1 – 7<sup>th</sup> precipitation forecast anomaly (left) indicates likely below-average rainfall over the northern main agricultural areas, with the highest deficits likely over eastern Santiago del Estero, Santa Fe, southern Chaco, Corrientes, and Entre Rios. During the same period, temperatures are likely to be above-average over the entire main agricultural areas. The March 8 – 14<sup>th</sup> precipitation forecast anomaly (center) shows a slight chance of below-average precipitation over parts of western Buenos Aires and eastern La Pampa as well as over Corrientes. During the same period, temperatures are likely to continue to be just above-average over most of the main agricultural areas.

The long-term March-April-May 2023 forecast (right) shows likely below-average precipitation in the northeast, west, and south regions, while above average in the northwest. During the same period, temperatures are likely to continue to be above-average across most of the main agricultural areas.



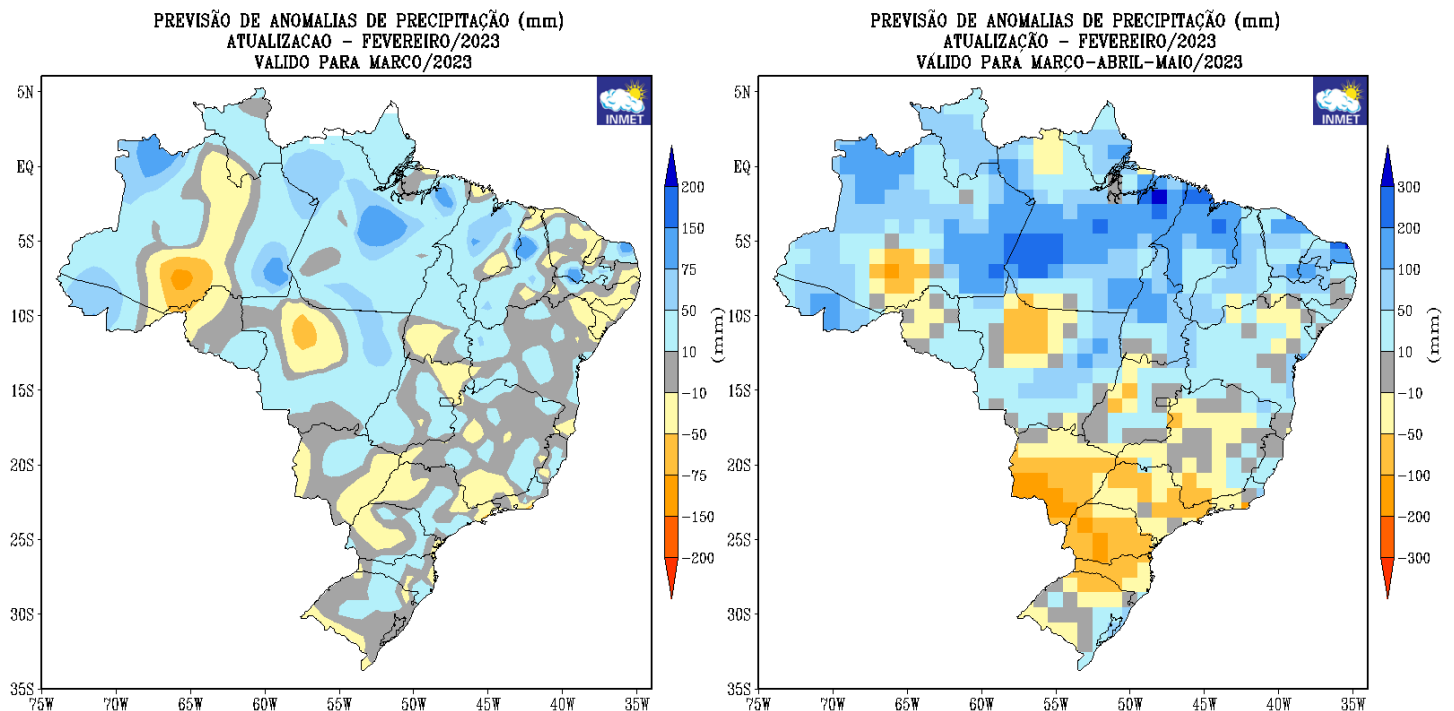
**Left:** March 1 – 7, 2023 forecast precipitation anomaly in mm. **Center** March 8 – 14, 2023 forecast precipitation anomaly in mm. Images from the [National Meteorological Service of Argentina](#). **Right:** March-April-May 2023 forecast rainfall anomaly. Image from the [National Meteorological Service of Argentina](#).

## Brazil Outlook

The March precipitation anomaly forecast (left) indicates possible below-average precipitation in south-central Amazonas, and north-central Mato Grosso, while possible above-average precipitation in North regions. During the same period, temperatures are likely to be above-average across Bahia, Minas Gerais, eastern Sao Paulo, eastern Sao Paulo, Parana, northern Rio Grande do Sul, and southern Mato Grosso do Sul.

The long-term March-April-May 2023 forecast (right) indicates likely below-average precipitation across Mato Grosso do Sul, Sao Paulo, Parana, Santa Catarina, northern Rio Grande do Sul, southern Minas Gerais, north-central Mato Grosso, and south-central Amazonas, while above average in the north and northeast regions. During the same period, temperatures are likely to be above-average across most states.

## February and 3-month Precipitation Forecast Anomalies



**Left:** February 2023 precipitation anomaly forecast, issued in February 2023. **Right:** February-March-April 2023 precipitation anomaly forecast, issued in February 2023. Images from the [National Institute of Meteorology](#).

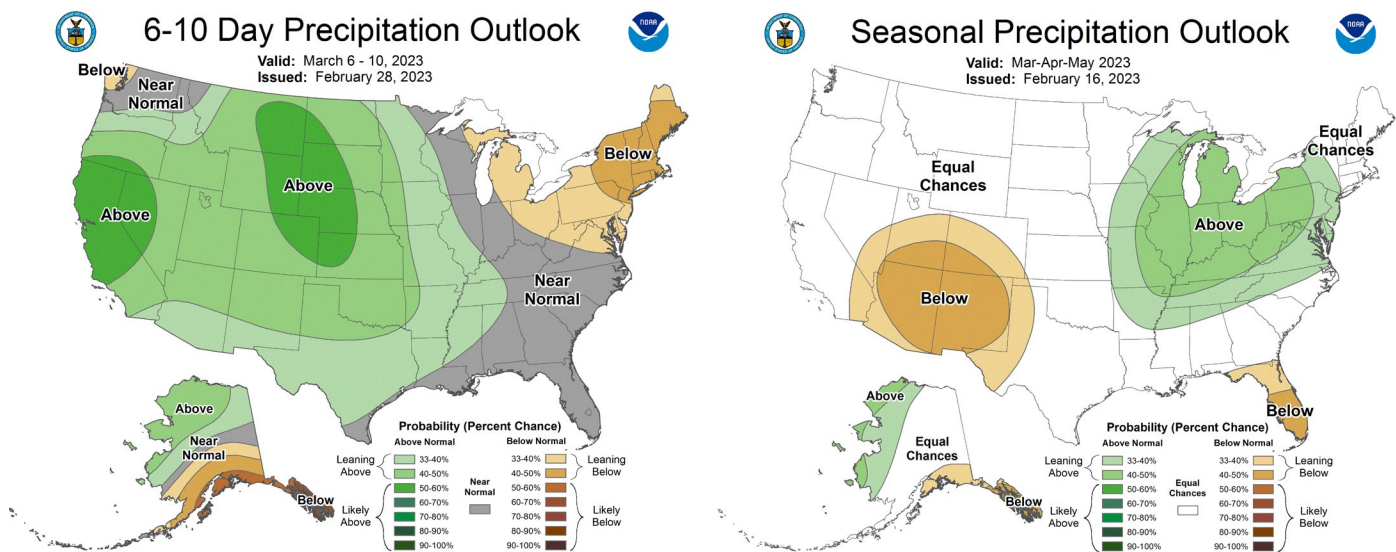


## United States Outlook

The March 6 -10, 2023 outlook indicates there is the possibility of above-average precipitation across most of the western and central US, with the highest likelihood over California, eastern Montana, eastern Wyoming, northeastern Colorado, western North Dakota, western South Dakota, Nebraska, and western Kansas. There is the possibility of below-average precipitation over New England. During the same time, temperatures are likely to be above-average across the southern US, while below-average in New England, the Pacific Northwest, the Northern Plains, and the Pacific Southwest.

For the long-term seasonal March-April-May (MAM) 2023 outlook, below-average precipitation is possible in the Southwest and Florida, while above-average in the eastern Midwest and the Mid-Atlantic. During the same period, temperatures are likely to be above-average across the South and extend up the entire East Coast. Additionally, temperatures are likely to be below-average across the northern Great Plains to the northern Pacific Northwest.

## Short-term and the March-April-May 2023 Precipitation Outlooks



The official 6 - 10 precipitation outlook issued on 28 February 2023 and the extended March-April-May outlook issued on 16 February 2023, from NOAA/National Weather Service, National Centers for Environmental Predictions, and Climate Prediction Center. Images from <https://www.cpc.ncep.noaa.gov/products/forecasts/>.

Source: NOAA Climate Prediction Center

\* Assessment based on information as of February 28<sup>th</sup>

## Appendix 1: Terminology & Definitions

### Crop Conditions:

**Exceptional:** Conditions are much better than average\* at the time of reporting. This label is only used during the grain-filling through harvest stages.

**Favourable:** Conditions range from slightly lower to slightly better than average\* at reporting time.

**Watch:** Conditions are not far from average\* but there is a potential risk to final production. The crop can still recover to average or near average conditions if the ground situation improves. This label is only used during the planting-early vegetative and the vegetative-reproductive stages.

**Poor:** Crop conditions are well below average\*. Crop yields are likely to be more than 5% below average. This is only used when conditions are not likely to be able to recover, and an impact on production is likely.

**Out of Season:** Crops are not currently planted or in development during this time.

**No Data:** No reliable source of data is available at this time.

\*" Average" refers to the average conditions over the past 5 years.

### Conditions:

	Exceptional
	Favourable
	Watch
	Poor
	Out-of-Season
	No Data

### Drivers:

These represent the key climatic drivers that are having an impact on crop condition status. They result in production impacts and can act as either positive or negative drivers of crop conditions.

**Wet:** Wetter than average (includes water logging and floods).

**Dry:** Drier than average.

**Hot:** Hotter than average.

**Cool:** Cooler than average or risk of frost damage.

**Extreme Events:** Catch-all for all other climate risks (i.e., hurricane, typhoon, frost, hail, winter kill, wind damage, etc.). When this category is used the analyst will also specify the type of extreme event in the text.

**Delayed-Onset:** Late start of the season

	Wet
	Dry
	Hot
	Cool
	Extreme Event
	Delayed-Onset

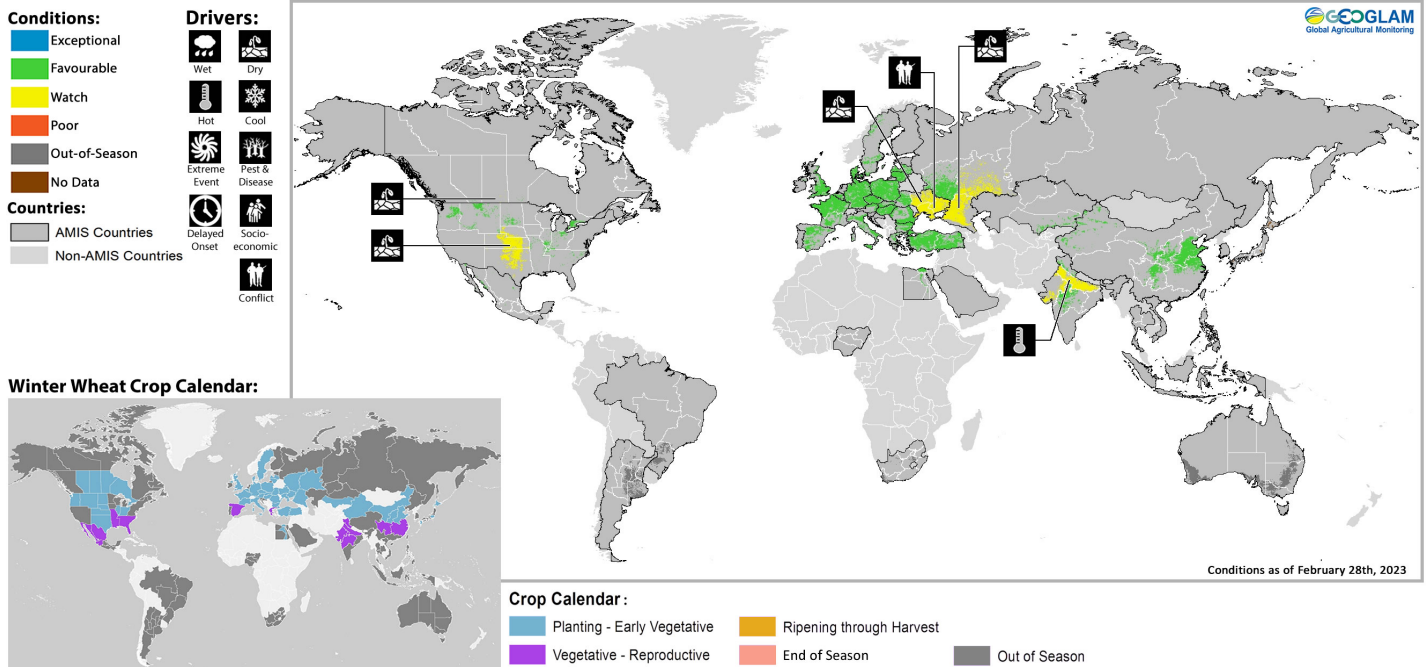
### Crop Season Nomenclature:

In countries that contain multiple cropping seasons for the same crop, the following chart identifies the national season name associated with each crop season within the Crop Monitor. Within the Crop Monitor for AMIS countries, the larger producing season (most recent 5 years) has been assigned to the first season.

Crop Season Nomenclature				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Argentina	Soybean	Spring-planted	Summer-planted	
Brazil	Maize	Summer-planted (larger producing season)	Spring-planted (smaller producing season)	
Canada	Wheat	Winter-planted	Spring-planted	
China	Maize	Spring-planted	Summer-planted	
China	Rice	Single-season	Late-season	Early-season
China	Wheat	Winter-planted	Spring-planted	
Egypt	Rice	Summer-planted	Nili season (Nile Flood)	
India	Maize	Kharif	Rabi	
India	Rice	Kharif	Rabi	
Indonesia	Rice	Wet-season	Dry-season	
Mexico	Maize	Spring-planted	Autumn-planted	
Nigeria	Maize	Main-season	Short-season	
Nigeria	Rice	Main-season	Off-season	
Philippines	Rice	Wet-season	Dry-season	
Russian Federation	Wheat	Winter-planted	Spring-planted	
Thailand	Rice	Wet-season	Dry-season	
United States	Wheat	Winter-planted	Spring-planted	
Viet Nam	Rice	Wet-season	Dry-season	

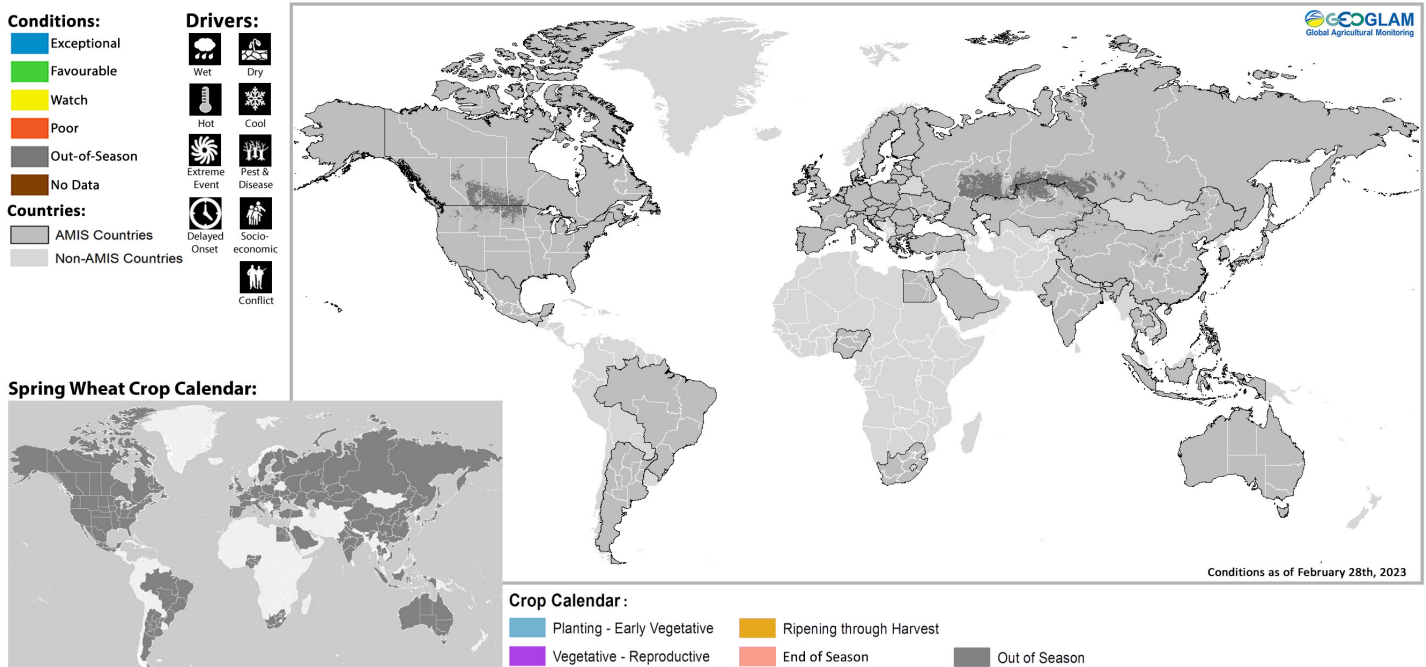
# Appendix 2: Crop Season-Specific Maps

## Winter Planted Wheat Conditions for AMIS Countries



Winter wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

## Spring Planted Wheat Conditions for AMIS Countries

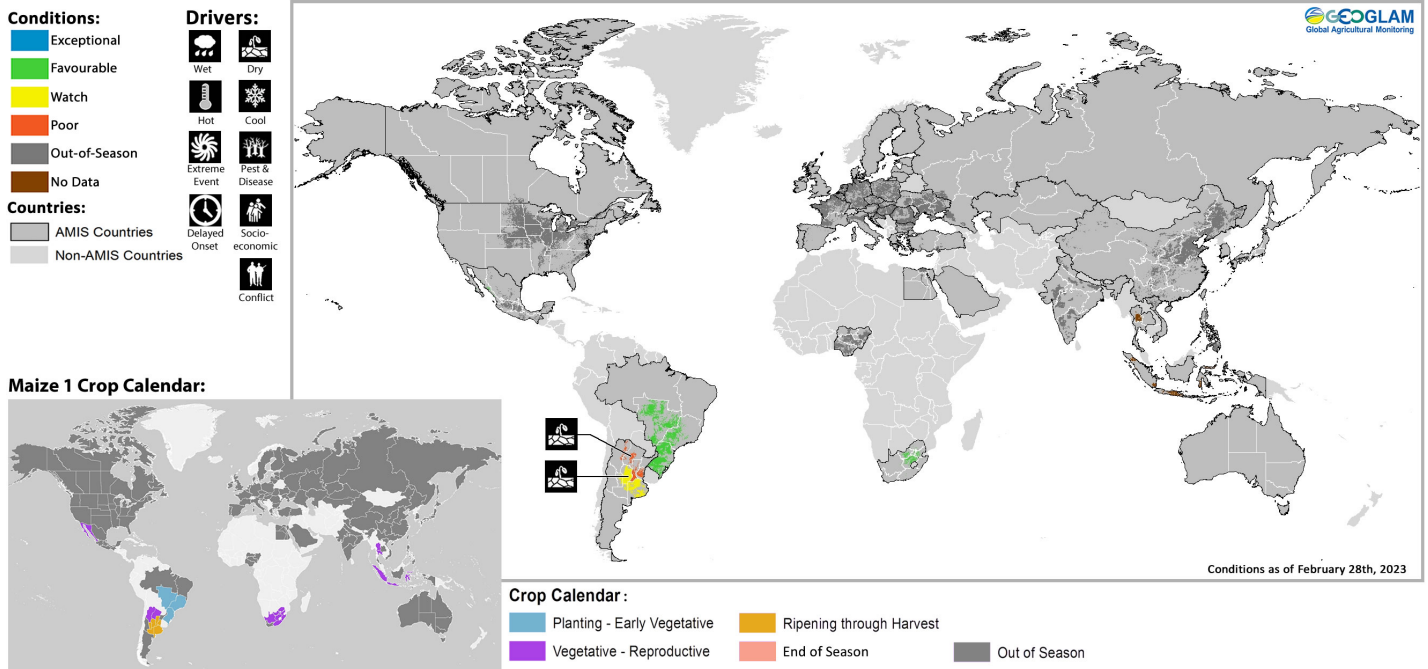


Spring wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

\* Assessment based on information as of February 28<sup>th</sup>

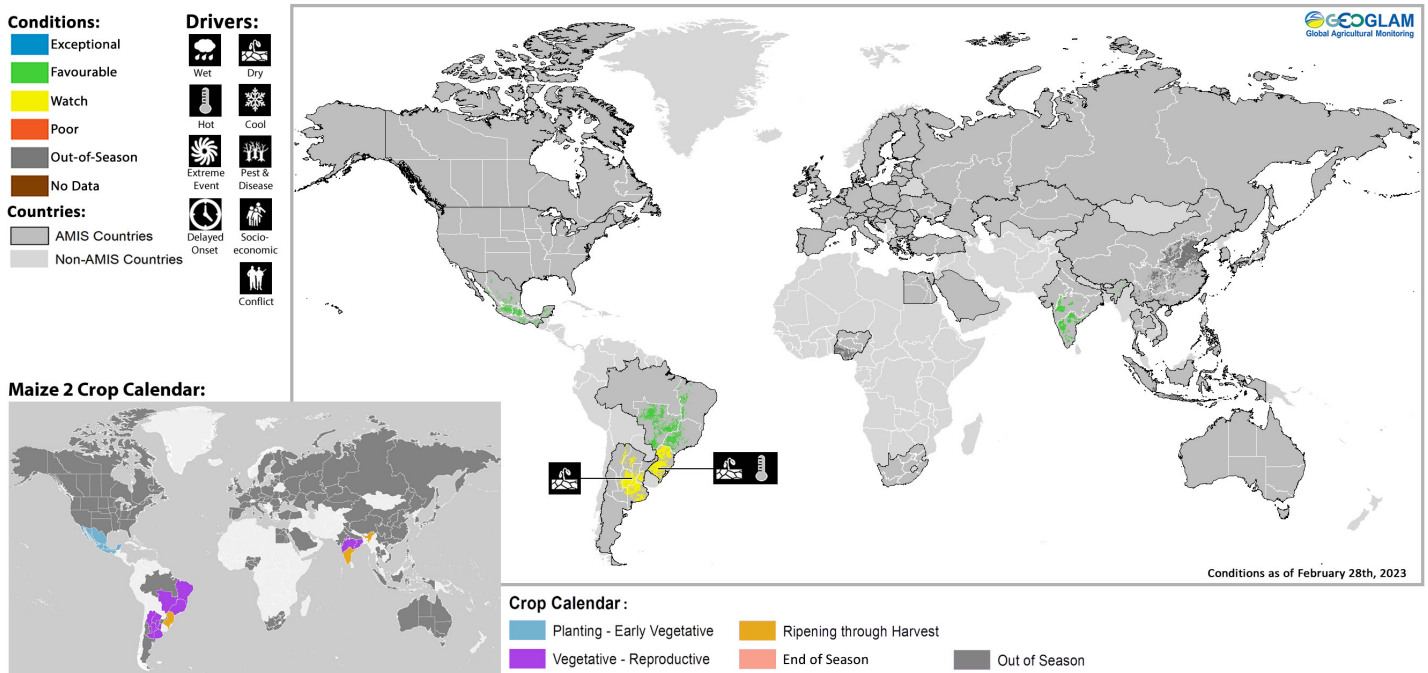


## Maize 1 Conditions for AMIS Countries



Maize 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

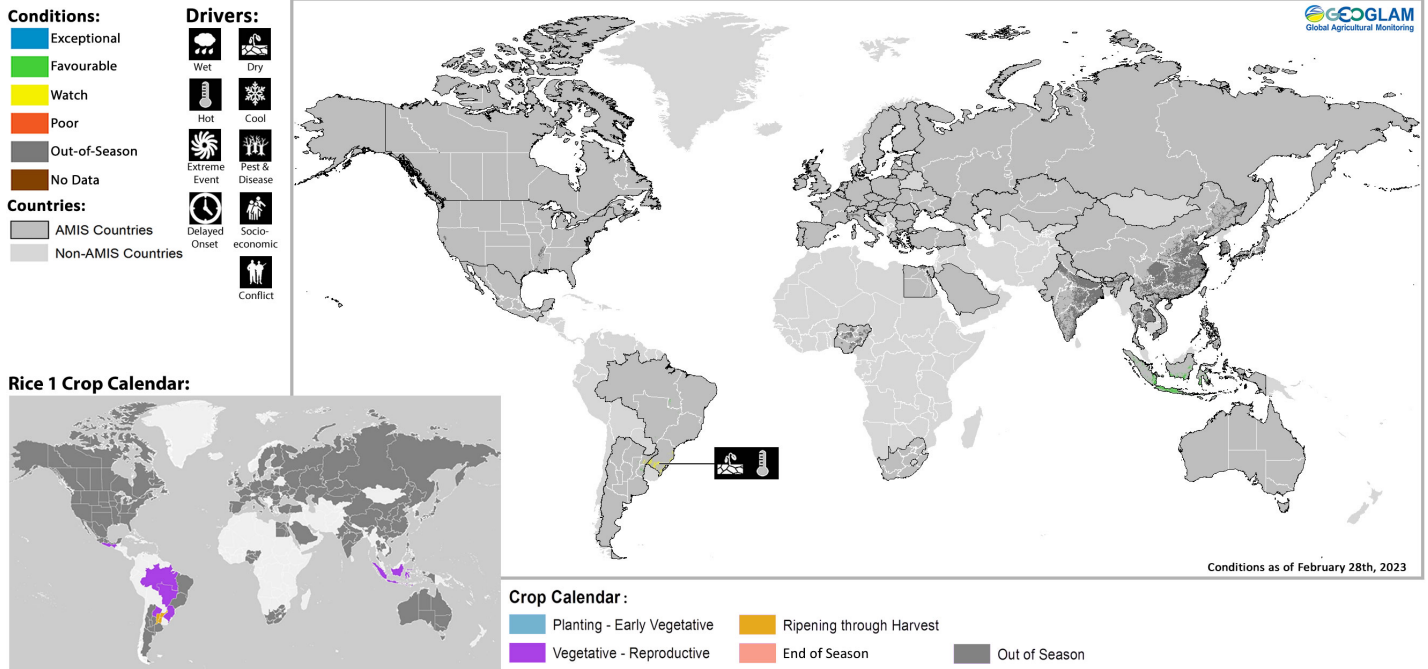
## Maize 2 Conditions for AMIS Countries



Maize 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

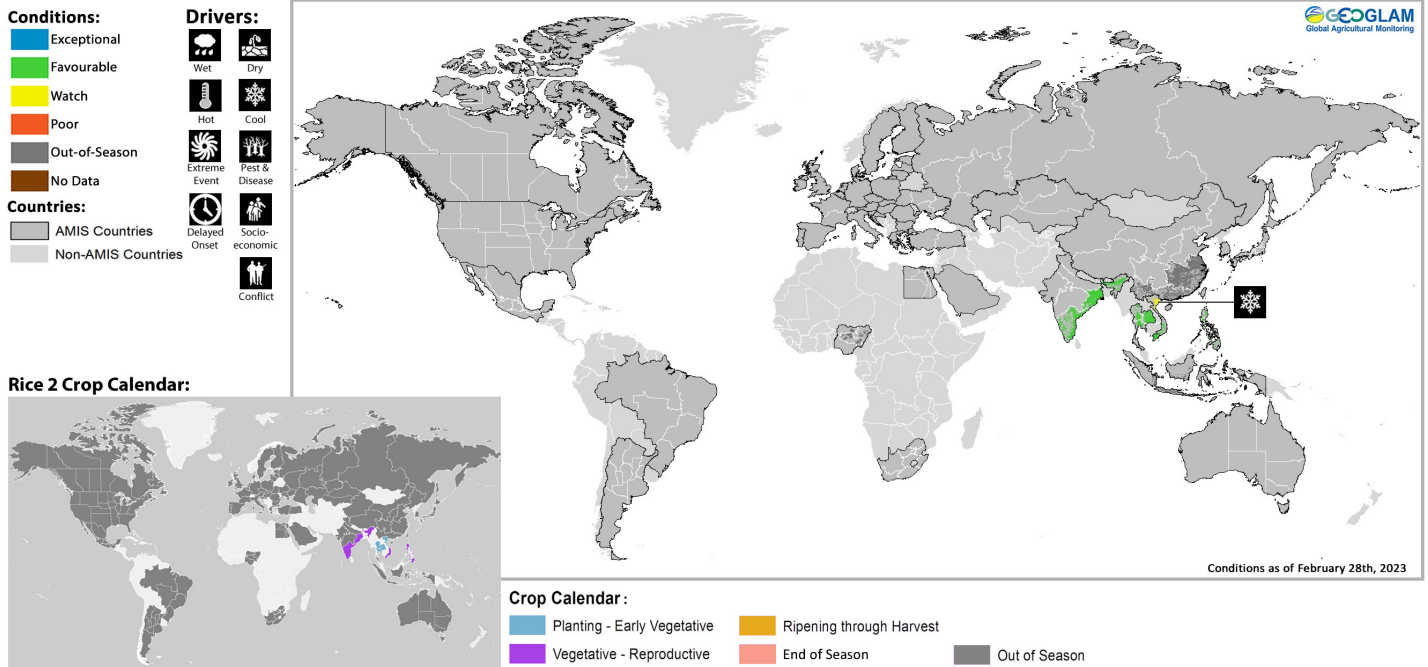
\* Assessment based on information as of February 28<sup>th</sup>

## Rice 1 Conditions for AMIS Countries



Rice 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

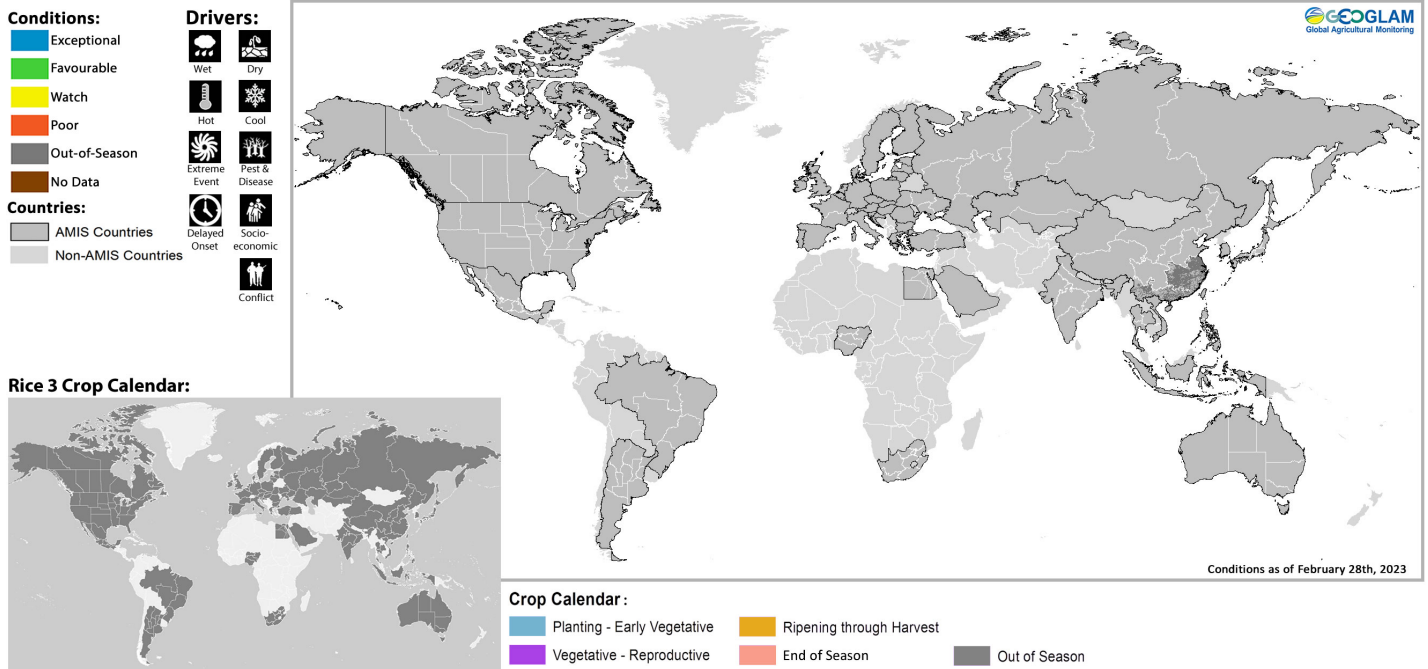
## Rice 2 Conditions for AMIS Countries



Rice 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

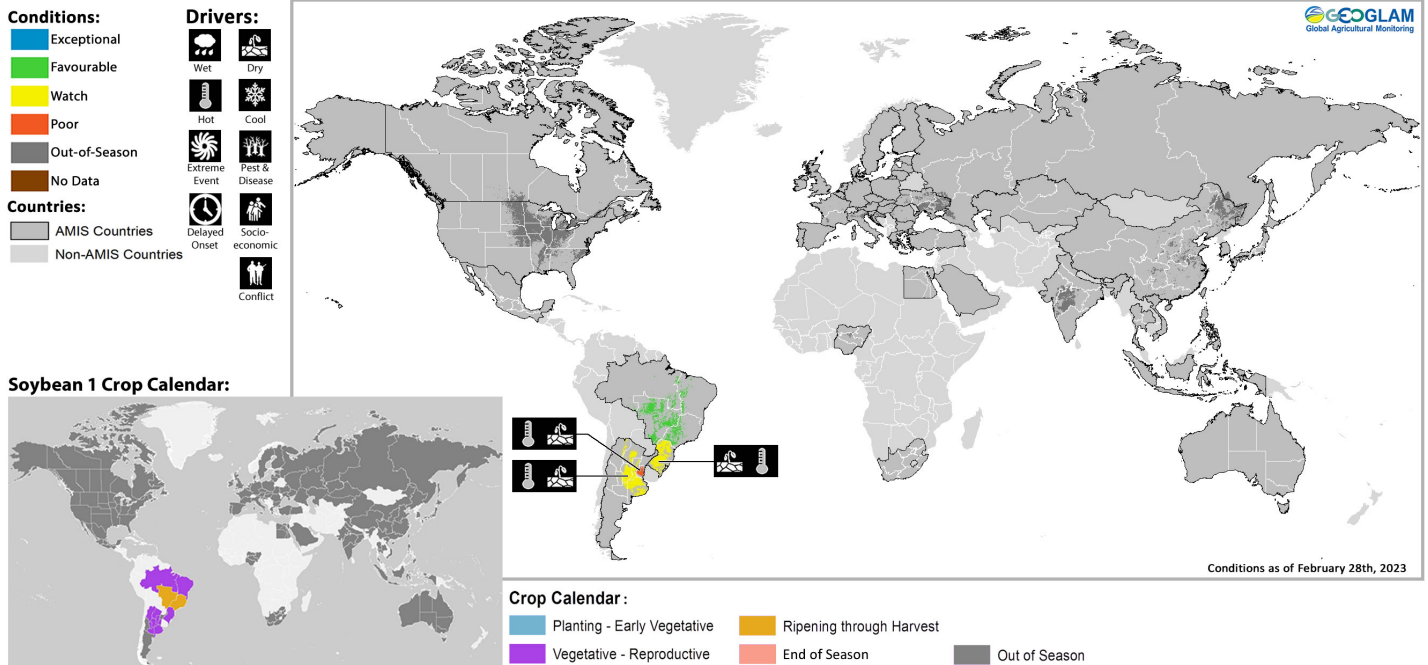
\* Assessment based on information as of February 28<sup>th</sup>

## Rice 3 Conditions for AMIS Countries



Rice 3 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

## Soybean 1 Conditions for AMIS Countries

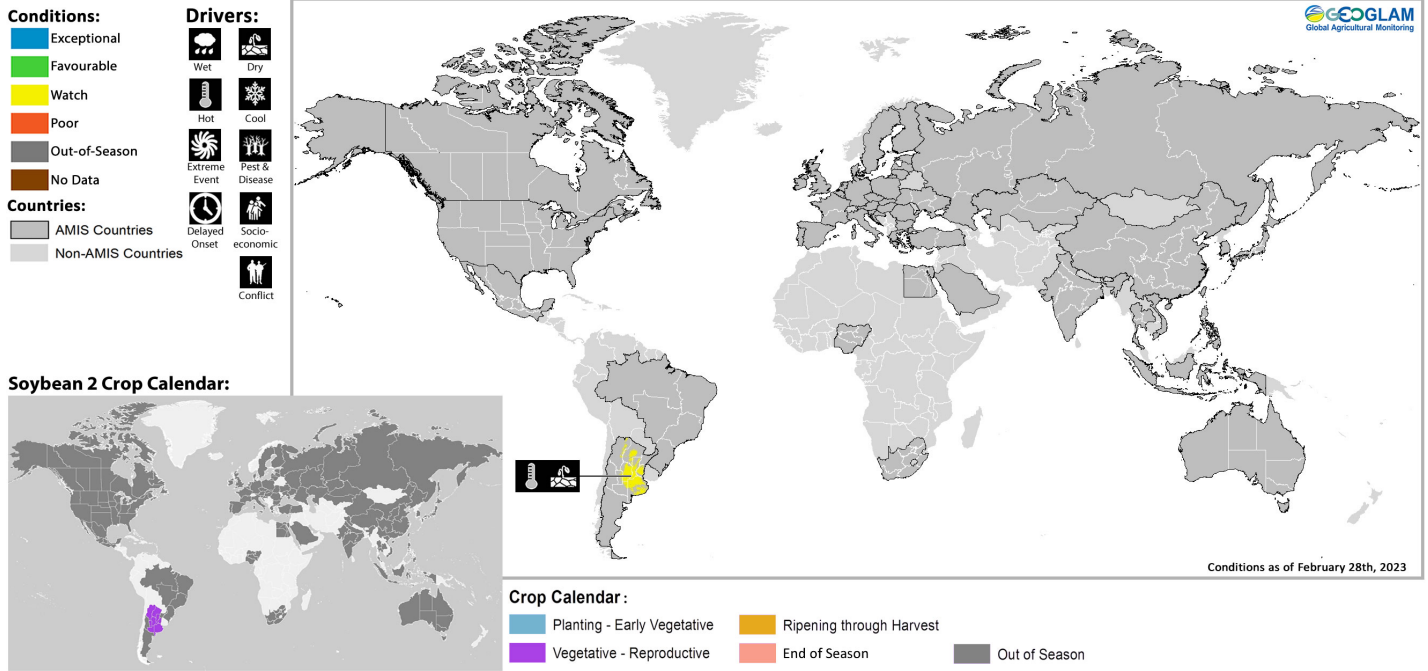


Soybean 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

\* Assessment based on information as of February 28th



# Soybean 2 Conditions for AMIS Countries



Soybean 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

\* Assessment based on information as of February 28<sup>th</sup>



Prepared by members of the GEOGLAM Community of Practice  
Coordinated by the University of Maryland with funding from NASA Harvest  
Climatic Influences by Climate Hazards Center of UC Santa Barbara

The Crop Monitor is a part of GEOGLAM, a GEO global initiative.

*Photo courtesy of Brian Barker*

<https://cropmonitor.org/>

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#### Sources & Disclaimer

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